

FIG. 1

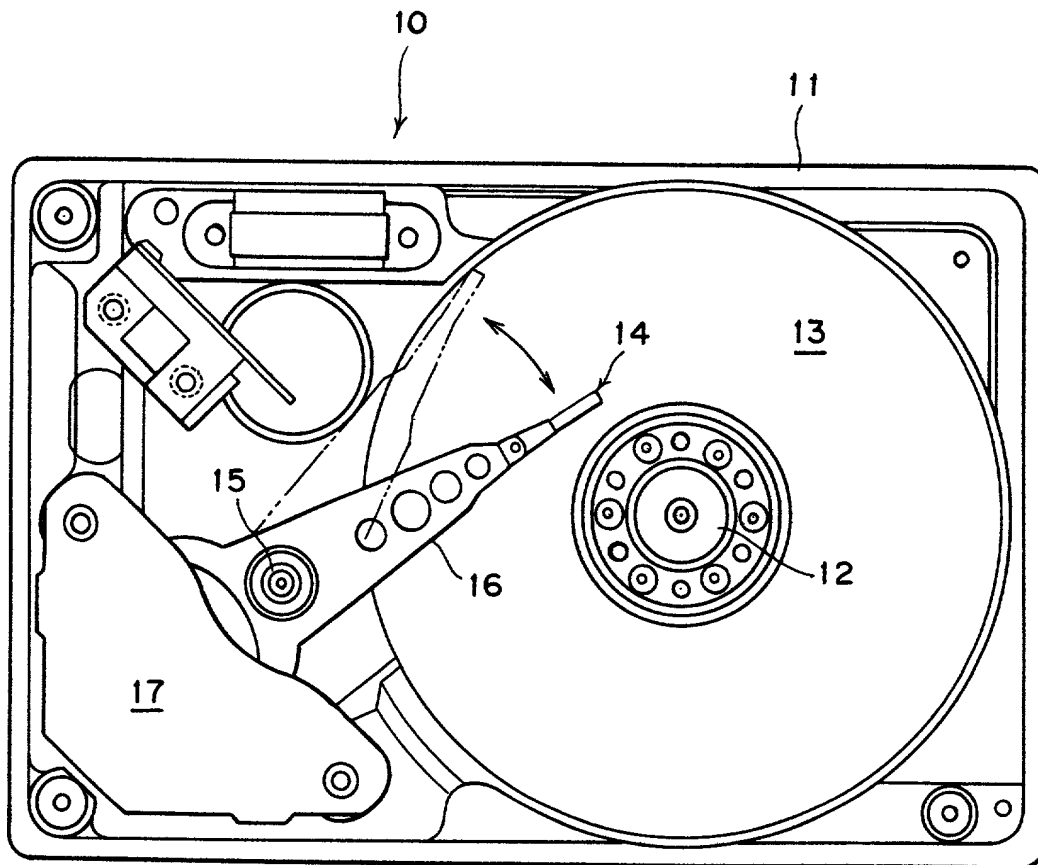


FIG. 2

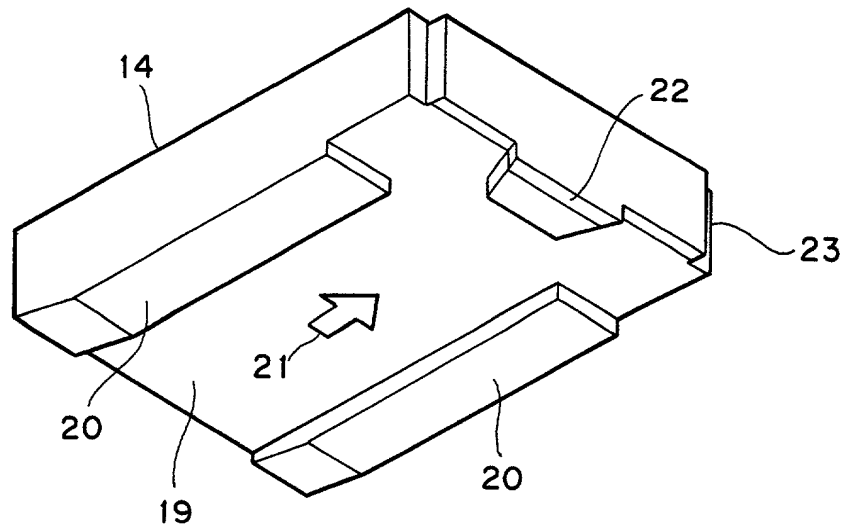


FIG. 3

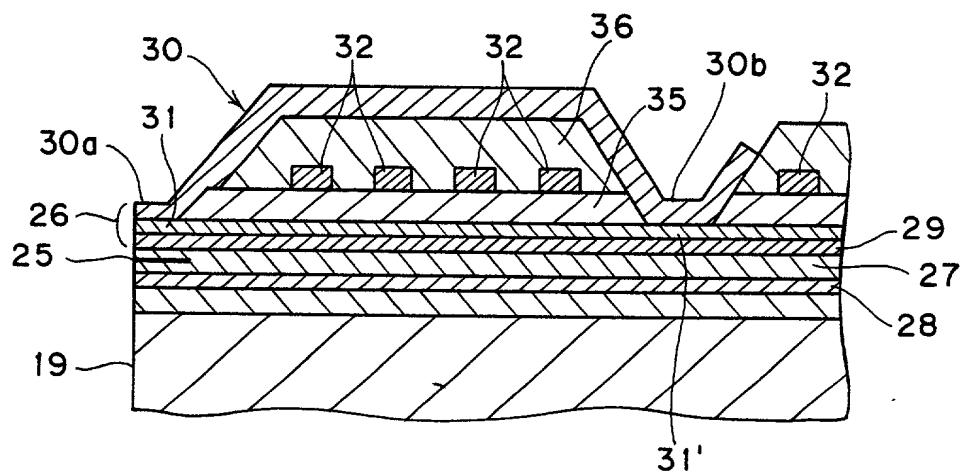


FIG. 4

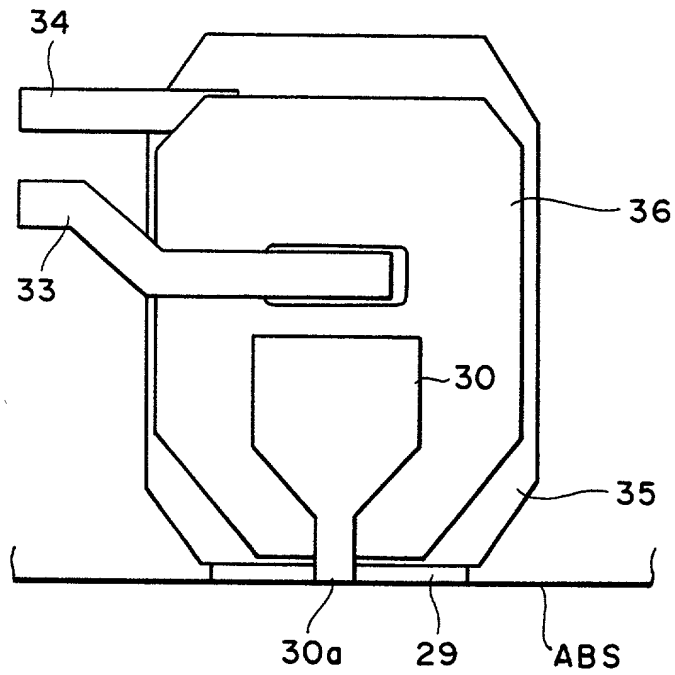


FIG. 5

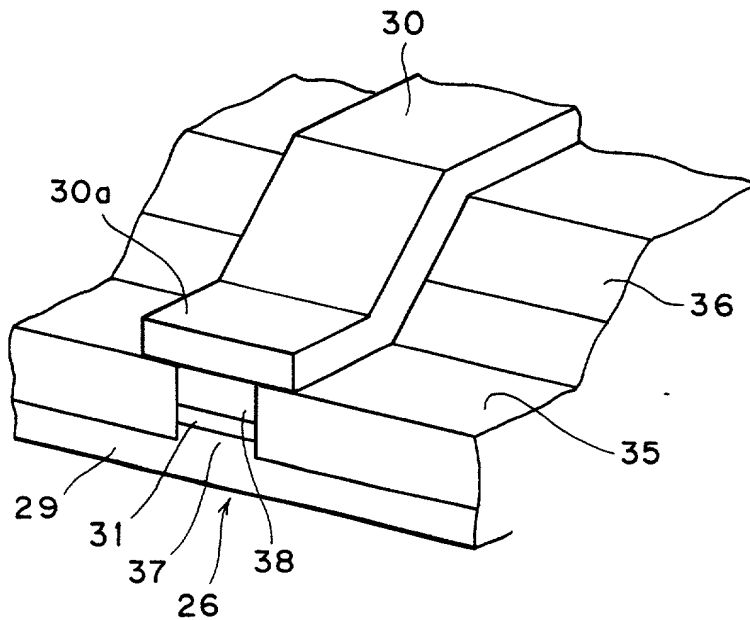


FIG. 6A

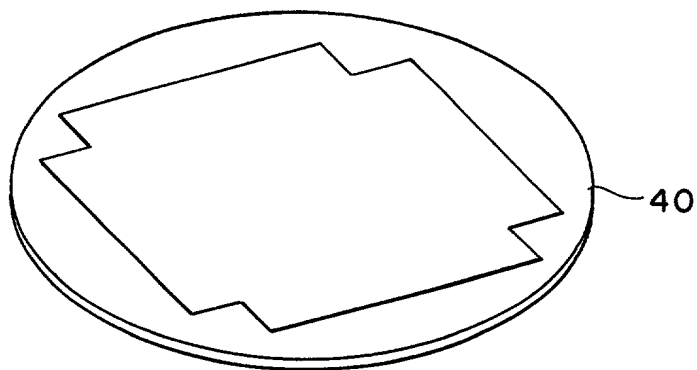


FIG. 6B

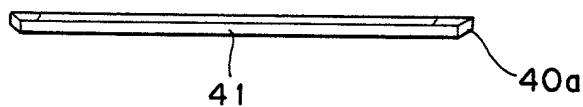


FIG. 6C

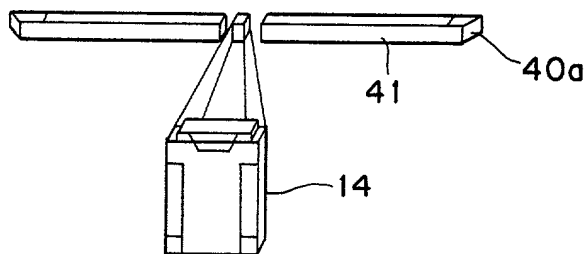


FIG. 7A

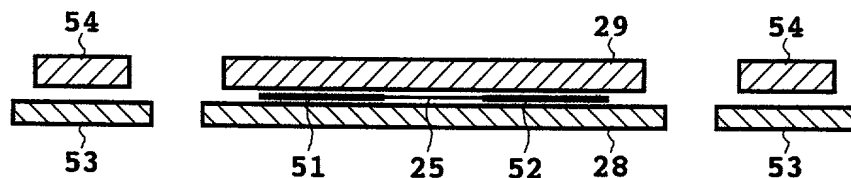


FIG. 7B

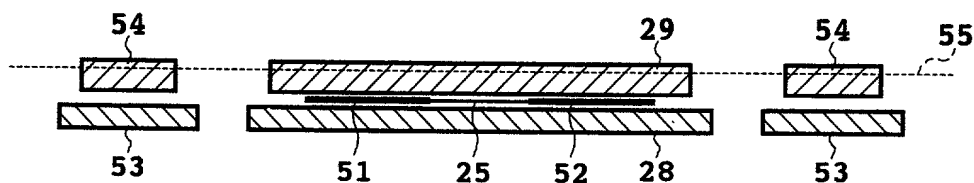


FIG. 7C

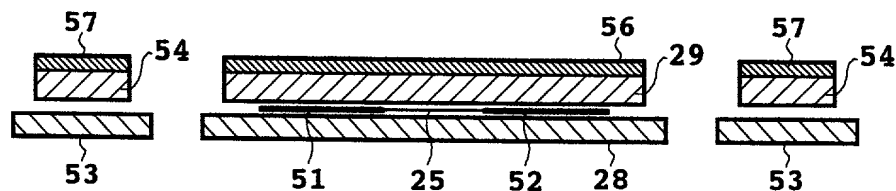
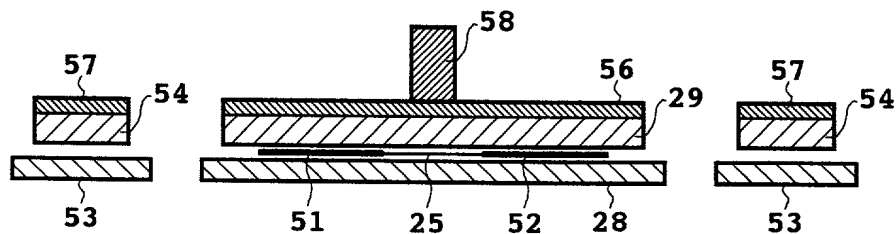


FIG. 7D



A cross-sectional view of a semiconductor device. A central gate structure (31) is formed on a substrate (28). The gate structure includes a gate dielectric (37) and a gate electrode (31). A source/drain region (25) is located beneath the gate structure. A side contact (58) is formed on the side of the gate structure. A top layer (59) is formed on the top surface of the device. A dashed line (T) indicates a cross-section. The device is surrounded by a passivation layer (54). Other labels include 29, 53, 51, and 52.

This cross-sectional view shows a central gate structure (30) on a substrate (28). The gate structure includes a gate dielectric (31) and a gate electrode (37). A channel region (38) is located between the gate electrode and the substrate. A source/drain region (39) is formed in the substrate (28) under the gate electrode. A side contact (54) is formed on the side of the source/drain region. The substrate (28) is composed of a first layer (51) and a second layer (52). A passivation layer (53) is formed on the top surface of the substrate. A contact pad (54) is formed on the top surface of the passivation layer. A gate dielectric (31) is formed on the top surface of the gate electrode (37). A gate electrode (37) is formed on the top surface of the gate dielectric (31). A channel region (38) is located between the gate electrode (37) and the substrate (28). A source/drain region (39) is formed in the substrate (28) under the gate electrode (37). A side contact (54) is formed on the side of the source/drain region. The substrate (28) is composed of a first layer (51) and a second layer (52). A passivation layer (53) is formed on the top surface of the substrate. A contact pad (54) is formed on the top surface of the passivation layer.

FIG. 8

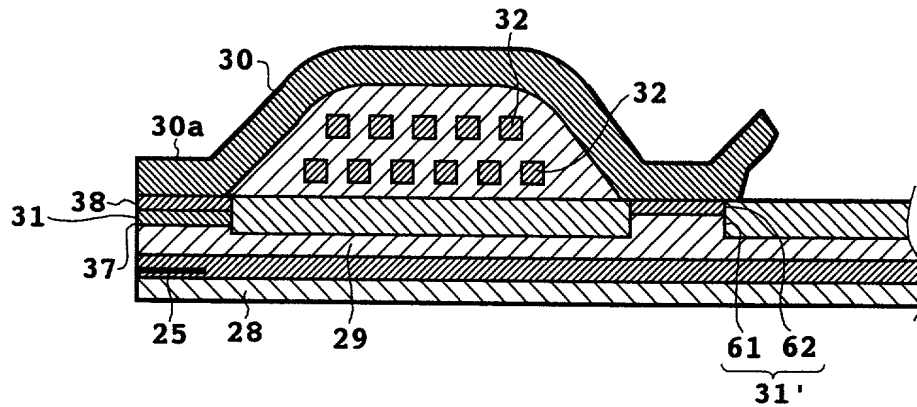


FIG. 9

